

LYDSTON (G.F.)

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—THE—

Prophylaxis ^{AND} Treatment of Puerperal Septaemia

—AND THE—

PUERPERAL INFLAMMATIONS.

BY

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Read before the CHICAGO MEDICAL SOCIETY, May 12, 1884.



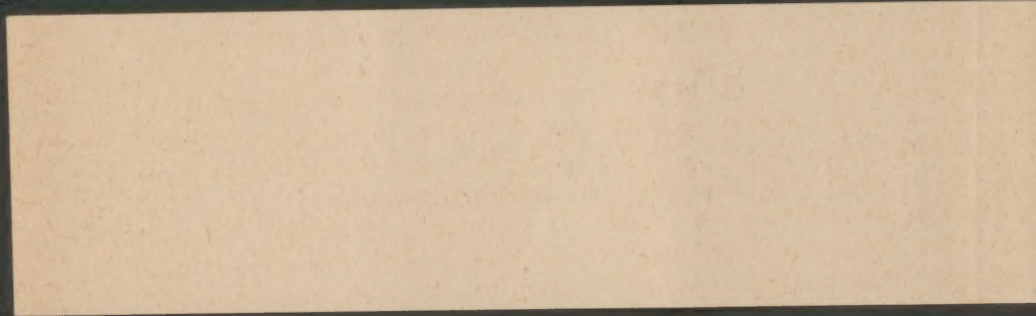
CHICAGO, ILL.:

A. M. WOOD & Co., BOOK AND JOB PRINTERS,
1884.

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The Prophylaxis & Treatment of Puerperal Septæmia and the Puerperal Inflammations.

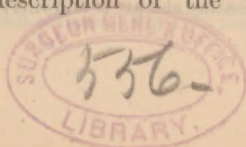
By G. FRANK LYDSTON, M.D., Late Resident Surgeon Charity and State Emigrant Hospitals, N. Y.,
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Among the most recent topics which have excited the interest of the medical profession in the east, and especially in New York city, is the prevention and treatment of puerperal fever. In the New York Academy of Medicine, and the New York County Medical Society in particular, the subject has been discussed with great vigor, the question of antiseptic midwifery receiving unusual attention. The admirably written essays upon the subject presented by Drs. Thomas and Garrigues, the one at the Academy and the other at the County Society, are familiar to all who have watched the columns of the *New York Medical Record* for the past few weeks, and have ere this become incorporated with the medical knowledge of a large number of the profession, who naturally enough are inclined to follow the guidance of those so well qualified to speak as the gentlemen mentioned. In the discussions following the reading of the papers the authors were ably seconded by some of the physicians present, but as stoutly opposed by others. Now while agreeing in the main with those gentlemen who endorse the conclusions offered by Thomas and Garrigues, there are some points in which I am inclined to

differ with them decidedly, and against which I feel it incumbent upon me to raise the humble voice of a general practitioner in protest. I am encouraged in this opposition chiefly because I am personally familiar with the data from which many of the conclusions arrived at by the essayists and their supporters were drawn, more particularly in the case of the views expressed by Dr. Garrigues.

In presenting the subject of puerperal fever, I shall endeavor to demonstrate the apparent sources of fallacy in the paper read by Garrigues especially, while at the same time endeavoring to present the deductions drawn from a moderate amount of personal experience and observation.

As an introduction to the discussion of a disease it is always well to consider its nature; hence it might be advisable to ask, "What is puerperal fever?" Now if I were asked what in my estimation is the most difficult problem in medicine, I should be disposed to answer "to define puerperal fever." One would but need to glance at the descriptions of the disease given by some of our eminent obstetrical authorities to be convinced of the truth of such a statement. Leishman's description of the affection



would perhaps be a fair sample of these.* Hervieux defined puerperal fever as a multiplicity of affections produced by puerperal poison. Lusk in his recent work upon midwifery, defines it as "an infectious disease, due as a rule to the septic inoculation of the wounds which result from the separation of the decidua and the passage of the child through the genital canal."† How widely different are these definitions! The puerperal fever of Hervieux is "a multiplicity of affections;" that of Lusk described ten years later, is "an infectious disease." Both of these authorities, however, ascribe the disease or diseases to essentially the same cause, *i. e.*, the absorption of a poison into the blood; but with one it is a "septic" and the other a "puerperal" poison. It would seem that although the more recent of these definitions is the more accurate as to the *materies morbi* which gives rise to such serious results in the puerpera, it is far behind the earlier definition in the matter of classification. The idea of a specific cause of puerperal fever is fast losing ground, and will doubtless some day disappear entirely.

It is to be hoped that with it there will also disappear the belief in a febrile disease peculiar to puerperal women, which is prevalent in some quarters. As Barker has said, "the gist of the matter stripped of its superfluous and obscuring elements lies in the inquiry whether there be a

disease which attacks puerperal women, and only puerperal women."*

He believes that there is such a disease, due to a specific puerperal poison.† But in spite of the opinion of so eminent an authority, I venture to make the assertion that puerperal fever as an entity does not, and never did, exist; and being so firmly convinced of its truth, I can see no reason for retaining the obstetrical nomenclature which admits its existence. Such modern terms as "metria" and "septæmia" are no better, however, if applied to the puerperal febrile conditions taken collectively.

To ascribe the low asthenic fever, the various inflammatory affections of the important organs of the pelvis and their various tissue investments, and the general peritonitis which follow labor in different cases, to a common cause, is, in my estimation, unwise and far from being the true explanation of their etiology. I make this assertion irrespective of whether "septic" or specific "puerperal" infection be the assumed common cause.

When we began to understand that the poison which is operative in the causation of certain morbid puerperal conditions might be ordinary septic products of organic decomposition instead of specific "puerperal" poison, we made a great stride in the proper direction; but when we ascribe all of the puerperal febrile states to this as a common cause we make a mis-

* Leishman's System of Midwifery. Ed. by Parry.

† Lusk—Science and Art of Midwifery.

* Medical Record, Feb. 16, 1884.

† Ibid.

take which nearly nullifies the advancement gained.

To assume that diseases which may occur from numerous and most diverse causes in the non-puerperal female become suddenly specific in the puerpera, and traceable to one common cause, viz.: "septic" or "puerperal" infection would appear very illogical. Inflammations for example, which may occur in healthy women from very slight exciting causes involving exposure or traumatism, are not likely to be deterred from attacking the puerperal female whose constitution and local conditions both invite their occurrence. In making this statement, it is not denied that these same general and local conditions favor the production and absorption of septic materials; but on the contrary, it is admitted that they are peculiarly favorable to such absorption. To enumerate them all would be but to repeat many facts which have been insisted upon so often and by so many who are much better qualified to speak upon the subject than myself, that it would be an act of supererogation upon my part to attempt it.

The result of the discovery of the fact that septic absorption is a prominent element in certain puerperal disorders has been a powerful tendency to ascribe every little disturbance to it, and as I have already intimated, to overlook certain of the ordinary causes of disease. This is indeed fallacious reasoning, for, as Barker has said, "no one has yet maintained that the process of parturition and the puer-

peral state exempt a woman from those causes which induce local inflammations in the non-puerperal, or will deny that the process of parturition and other attendant conditions besides the absorption of septic poison, may be the efficient cause of local inflammation."

He also states it as his opinion that in private practice where there is no epidemic influence, twenty cases of local inflammation due to such causes will be met with where one will be found due to septic absorption.* Perhaps this latter statement is a slight exaggeration, but it is certainly approximately borne out in practice, which is, perhaps, peculiar when all the circumstances favorable to septæmia are taken into consideration.

Now, while inclined to accept Barker's statements in the main, I do not wish to be understood as advancing any arguments in favor of ignoring the danger of septæmia, but simply as offering a protest against what for convenience sake might be termed the septophobia, prevalent in some quarters.

Having defined my position as midway between the two extremes of practice, I may venture to allude to a few of the points predisposing to puerperal septæmia, which so far as I am aware, have not been very strongly emphasized.

During intra-uterine life the circulation of the mother and that of the child are in most intimate relation, the nutritive functions of the latter

* N. Y. Medical Record, Feb. 16th, 1884.

being entirely dependent upon materials derived from the blood of the former.

As a necessary consequence of this arrangement, there is a constant interchange of nutritive and waste materials between the two vascular systems through the medium of the placenta. The nutritive material taken to the placenta is far in excess of the waste materials returned therefrom, this being a physiological necessity.

In the process of osmosis, therefore, which governs this interchange of material, the direction of the fluids is chiefly toward the child. At birth, however, all this is changed, and there is no longer osmosis in the direction of the uterine cavity, but on the contrary, a decided tendency of the fluids contained therein, and the nutritive juices of the uterine tissue, toward the maternal circulation.

The afferent current is checked, but the lymphatics and veins are now more active than ever, as it is mainly through them that the retrograde metamorphosis of tissue, which is the essence of physiological uterine involution, is accomplished; or in other words, their function is to remove those nutritive materials, which, by the removal of the foetus, have been rendered unnecessary. That a large amount of waste material is thus removed is evidenced by the peculiar characters of the colostrum.

This, rather than the patulous condition of the uterine sinuses *per se*,

is the most important physiological circumstance favoring septic absorption, for with the products of retrograde metamorphosis of tissue, we are likely to have absorbed the products of putrefactive changes, should such by any mischance occur.

The probability of a small amount of morbid but not necessarily injurious material becoming absorbed in a large proportion of cases is very great, and indeed some of our most experienced obstetricians have lately ascribed the so-called "milk-fever" to this cause.

This would agree very well with the views of those who believe with Lusk* that round micrococci are the necessary causal element of true septic fever.

For my own part I incline to the belief that the "milk-fever" is simply due to the hyper-activity of the nutritive functions resulting from the sudden introduction of an excessive amount of nutritive material into the circulation. It will be observed that the fever lasts only until the excess of material has had time for elimination, chiefly through the selective action of the mammary glands.

Of course it must be admitted that if products of putrefaction be also introduced, the rise of temperature and danger of eventuation in septicemia will be proportionately increased.

"Milk-fever" is a usual concomitant of child-bed, but varies in prominence in different cases. When-

* Op Cit.

ever the temperature rises much above 101° or 102° F., especially if the lochia be abnormal, septic complications should be suspected, and in general too much dependence must not be placed upon the state of the mammary gland as an explanation of the febrile phenomena.

It may be observed by anyone who has given the subject much attention that pale, weak, anæmic women are most liable to develop septæmia, while more robust women will quite likely resist septic absorption, and if sick at all are most likely to be attacked by local inflammation of some variety.

It needs but a glance at the clinical characters of a typical case of each to determine a wide difference between them, a difference too which is due to the fact that the two forms depend upon widely different causes, in spite of the efforts of some authorities to throw the responsibility of both upon one common cause, viz, "septic" absorption. Surely the *origo mali* in the first case cannot be that of the second.

Here we have, on the one hand, a puerperal woman who on the third day after confinement has been taken with fever, with or without rigor, the fever becoming continuous, with more or less marked remissions, unattended with any discomfort whatever, unless perhaps a feeling of exhaustion, and finally merging into a typhoid condition, with perhaps diarrhea, terminating in death; and upon the other hand, an affection arising sometimes within a few hours after labor, char-

acterized by abdominal or pelvic pain of frequently great intensity, great tenderness over the region involved, sthenic fever of perhaps moderate intensity, with local manifestations of an inflammation, and perhaps followed by suppuration, but the case on the whole warranting a moderately favorable prognosis. Quite a decided difference between the two, yet they are both included by many under the head of "puerperal fever."

Cases are of course frequently seen in which both affections are blended, so that it is hard to say whether the septæmia is primary and the inflammation secondary, or the reverse, or whether they are simultaneous in their onset, though independent of one another in their pathological relations. For my own part, I believe any of these sequences to be possible.

It might be said in explanation of the occurrence of septæmia in one woman, while another, more robust, escapes that disease but falls a victim to pelvic inflammation, that the former is of feeble resisting power and incapable of withstanding toxic infection, while the latter, being plethoric, is not so susceptible to toxic influences, but is markedly predisposed to inflammation.

There is, however, another marked difference between these women, for while one is well nourished and her tissues do not want for an abundance of nutritive pabulum, the other is debilitated and her tissues fairly crave for supplies of new material, she being practically a huge sponge, ready

for the absorption of any materials of an organic nature which may be brought in contact with absorptive surfaces, providing such materials be in a condition suitable for absorption.

Now this is precisely the process which takes place in the uterine cavity, the osmotic current being especially strong, and containing not only material which is nutritive, but also that which is toxic.

Conditions of debility favor unhealthy and readily putrescible secretions, which is another strong causal element of septæmia in women whose health is below par.

We will accept the statement that quite a large number of cases of febrile disturbance following labor, are septic in their origin, and inquire as to the influence of bacteria in their causation. I am inclined to believe that septæmia may occur from the absorption of fluid from which bacteria are absent, but I am nevertheless of the opinion that bacteria are the origin of such cases of septæmia, for in the absence of such organisms no putrefaction is possible.

Sepsin, the principle isolated by Bergman and Smeideberg from putrefying fluids from which bacteria have been removed by filtration, will, when introduced into the blood, produce septæmia, but bacteria were originally essential to the production of the sepsin.

Sepsin, in its results, differs not at all from snake virus, and operates precisely like the latter in that its destructiveness depends in a great

measure upon local and constitutional conditions in the affected individual.

In the production of that phase of septic intoxication known as pyæmia, and which is but one grade of septicæmia, bacteria must necessarily be present. In certain instances of febrile attacks following childbirth, it would seem probable that we have simply a traumatic fever.

As the latest theories regarding traumatic fever assume that it is septic in origin, it might naturally seem to be included under septæmia, but I hold the opinion that traumatic fever, while often due to septic absorption, may be due to nervous influences. It is a well-known fact that shock is often followed by fever from excessive reaction, and this is, in my estimation, precisely what we have in certain impressible females following childbirth, *i.e.*, traumatic fever resulting from nutritive disturbances, due to excessive reaction following nervous depression, particularly of the sympathetic system, from shock. Many of the cases of fever following instrumental labors might perhaps be explained in this way.

Obviously, septæmia might follow the traumatic fever quite readily, inasmuch as any febrile disorder in the puerpera renders her peculiarly liable to septæmia. This will be found true in cases affected by malaria, in hospital practice especially, and may explain the confusion that sometimes arises in the differentiation of malarial fever in the puerpera from septic infection.

In certain cases of septic infection following labor, we have abscesses and diffuse suppurations resulting in various situations, and sometimes the characteristic curve which with other phenomena, constitute the symptoms of the disease termed "pyæmia," and differing little, if any, from the pyæmia following surgical operations or injuries. (I have noticed, however, in the few cases I have seen, that the characteristic temperature curve is exceptional. This probably arises from the fact that the peculiar physiological condition of the woman, particularly as regards the secretion of milk, interferes to a certain extent with the typical curve of the "pyæmic" fever.) This form of puerperal septæmia is sometimes very chronic. I recall an instance occurring in the New York State Emigration Hospital, in which a woman developed septæmia with resultant gluteal abscess that lasted for over two months. Upon autopsy secondary suppurative processes were found in the liver and kidneys. I wish to say in this connection that I am unable to see any valid reason for our adherence to the term "pyæmia" under any circumstances, as it is a misnomer, and as such should not be retained, unless perhaps with the qualification that it is but a phase of septæmia. The causal element of the phases of disease usually termed respectively pyæmia and septicæmia is the same, viz., the absorption of septic matter. The essential difference between the two lies in the fact that in one we have the

formation of thrombi which contain micrococci, and which become detached, enter the circulation, and pass along until they become lodged in some tissue or organ, where they form new foci for suppurative inflammation, while in the other no thrombi are formed, or if formed, become so rapidly and thoroughly disintegrated that secondary suppurations do not result. Virchow believes that a severe case of septæmia implies a continued formation and absorption of septic poison, but this is obviously not always the case, for in certain instances the septin acts like the venom of serpents—a very small quantity apparently sufficing to cause fatal disorganization of the blood. This is illustrated in certain cases of septæmia following dissection wounds. In such instances the rapid disorganization of the blood prevents the formation of thrombi, and consequently metastatic abscesses cannot occur. In a general way it may be said that the formation or non-formation of thrombi depend upon the intensity of the infection and the local and constitutional conditions present. The peculiar condition of the blood of the puerperal woman probably has much to do with the non-formation of metastatic abscesses which, as we all know, are quite exceptionally seen in the puerpera. Such abscesses might more often occur, however, were not the patients so speedily destroyed by the intense infection characteristic of puerperal septæmia. As for the symptoms which are generally assumed to

be characteristic of "pyæmia," they are simply those which we might naturally expect from the formation of pus under other circumstances; viz., chills, febrile movement, and perhaps sweating, or practically hectic fever, the severity of which depends mainly upon the constitutional condition of the patient, the extent of the suppurative process, and the importance of the organ involved.*

From what has been said I think it may be seen that I recognize the important bearing of septic absorption upon the production of puerperal fever, preferring however to omit the latter term from our classification. Thomas is among those who go to the extreme of attributing all puerperal disorders to the absorption of septic poison. According to him, "it matters not whether the disease be a phlebitis, cellulitis, lymphangitis, or peritonitis—the essence of the disorder is the absorption of poison into the blood of the puerperal woman through some solution of continuity in the genital tract."† Such an assertion is certainly too sweeping; for who of any experience but will admit that exposure and the effects of traumatism *per se* will account for many cases of inflammatory trouble following labor? It hardly seems possible that so thorough a practitioner as Thomas would make such a statement. Such however is the liberty ac-

corded to great men, who never want for followers wherever they may lead.

Phlebitis following labor and giving rise to the disease known as phlegmasia dolens, may result from trauma, especially if exposure be superadded, or it may arise from simple thrombosis occurring independently of bacteria or septic processes. In the same manner cellulitis may arise. There is necessarily, especially in protracted labors, more or less bruising and disturbance of the circulation of the tissues and organs of the pelvis, and a "locus minoris resistentiæ" being thus afforded; and the woman being especially susceptible to cold and depressing influences of all kinds, it remains but for an exposure to a draught of air to light up an inflammation of the uterus constituting a metritis, or more probably of the surrounding serous or cellular tissues constituting a pelvi peritonitis or cellulitis. That causes, much slighter than labor, will produce pelvic inflammation will be readily appreciated by any one who has had an experience similar to my own, in lighting up a severe cellulitis by the simple passage of a sound into the non-pregnant uterus. In the event of the pelvic peritoneum becoming involved, simple extension may result in a rapidly fatal general peritonitis.

In these instances of puerperal inflammation, septæmia, if it occurs at all, is secondary to, or a complication of, the inflammatory affection. In the same way, septæmia may precede the local inflammation, which occurs as a complication, but may be due

*In an article upon the relations of pyæmia to septicæmia in the WESTERN MEDICAL REPORTER for July, 1883, I have fully presented my views upon this subject.

†Paper read before the New York Academy of Medicine Nov. 6, 1883.

either to the septic affection *per se*, or to other causes.

I will not undertake to give a detailed description of all the diseases to which the puerpera is liable, but in order to direct attention to what Hervieux terms their "multiplicity," and to illustrate the probably fallacious reasoning of those who affirm that septicæmia is the term by which they should collectively be designated, I will present Parry's excellent classification of those puerperal disorders whose principal feature consists in fever with its various concomitants.* Three classes are given, as follows:

I. "Local inflammatory diseases.—
a. Metritis. b. Pelvic cellulitis. c. Pelvic peritonitis. d. General peritonitis.

II. "Septic diseases.—a. Pyæmia and septicæmia. b. Diphtheria of wounds. c. Erysipelas of the genitals and internal organs.

III. "Idiopathic fevers in the puerperal female."

The author of this classification frankly admits that it is open to criticism, being rather too dogmatic in the present state of our knowledge of the subject.

While willing to acknowledge that in a large proportion of cases such an arbitrary division is impossible, I still entertain the belief that it is practicable sufficiently often to enable us to recognize the existence in different cases, of each and every

one of the affections named. The explanation of the confusion surrounding the classification of the puerperal diseases lies in the simple fact that in any given case septic absorption may occur either primarily or secondarily, being on the one hand the essence of the disease, and upon the other merely a complication.

There are a few modifications of Parry's classification which might be suggested as enhancing its accuracy. To the first class, or local inflammations, may be added the "dissecting metritis," so thoroughly studied by Garrigues,* and phlegmasia dolens.

Class II should be qualified by the statement that in certain instances the local inflammations are septic in character, and diphtheria of puerperal wounds and erysipelas should be classed as specific; indeed these two affections, with the idiopathic fevers, are the only puerperal disorders that can be properly called specific.

Pyæmia should be omitted altogether from the classification as a distinct affection, as it is simply a septæmia with secondary suppurations.

Parry has himself, ascribed the difficulty of classifying the puerperal affections to the fact that "all may be attended by or produce the symptoms of purulent or septic infection." He also recognizes a marked difference between the septic and simple forms of puerperal peritonitis. There is a simple explanation of the marked clinical difference in the two forms

*American Journal of Medical Sciences, Jan., 1875, and Leishman's System of Midwifery.

*American Journal of Obstetrics. 1883.

of inflammation, and which does not imply any pathological difference between them, which Parry does not give, and that is, that the exhaustion of the vital powers by a complicating septic infection is amply sufficient to account for the asthenic character of so-called septic peritonitis. The origin of the disease may be precisely the same as in simple peritonitis, and in no sense septic, excepting that septæmia occurs as a complication, and in proportion to its severity modifies the serous inflammation.

I will not deny that puerperal peritonitis may be, and undoubtedly often is, septic in origin, but I do most emphatically insist that it is not always so, and that there is not a characteristic "septic" peritonitis.

In regard to the belief in the conversion of the poisons of the exanthemata into a specific puerperal poison entertained by many, I consider it absolutely untenable, apparent evidence to the contrary notwithstanding. The idiopathic fevers are, of course, more severe, and necessarily of great gravity in the puerperal female, but this is due to the fact that the genital canal is in a condition which invites inflammation.

We all know the danger of exciting intestinal inflammation by the administration of cathartics in the exanthemata, and it is easy to appreciate the far greater liability to local inflammation which exists when the genital tract is so profoundly disturbed as after labor, particularly if it be at all difficult. The idiopathic fevers, too,

vitiates all the secretions, rendering them readily putrescible, and the uterine cavity is consequently a very favorable soil for bacteria and the production of sepsis.

There are, of course, many facts which tend to bear out the belief in the conversion of the poison of one specific disease into that of another, and one writer in particular, has strenuously advocated the "unity" of the materies morbi of various diseases.* For my own part I will admit that I have been quite forcibly impressed by the apparent interdependence of the poisons of different diseases. Numerous cases might be cited of persons contracting diseases, the most diverse apparently, from exposure to the same atmospheric influences.†

One source of confusion doubtless arises from the fact that in many specific diseases septic conditions arise, and such septic conditions present essentially the same phenomena in whatever disease they may exist as a complication. Then, too, the type of specific disease of any particular kind may vary greatly, being chiefly dependent upon the constitutional condition and sanitary surroundings of the individual.

While discussing the nature of the puerperal diseases in a general way, I wish to make especial mention of diphtheria of puerperal wounds and puerperal erysipelas. Diphtheria of

* Dr. G. De Gorrequer Griffith, reprint from Midland Medical Miscellany, and from Glasgow Medical Journal, 1882.

† Vide account of such a case by Dr. L. J. W. Lee in the N. Y. Medical Record, Vol. XXV, No. V, page 84.

puerperal wounds was first described by Fordyce Barker in 1860. It had not been regarded as a distinct disease prior to that time, Martin, of Berlin, for example, having taught that diphtheritic deposit was the only essential element of puerperal fever, a view which in the light of our more recent observations is, of course, untenable.

The disease has received marked attention only within the last fifteen years, and where observed has usually been of the nature of a hospital epidemic. Parry has described about one hundred cases, with a mortality of twenty-five per cent., which occurred in the Philadelphia hospital between 1870 and 1874,* and this description is about as thorough as any with which I am familiar. Garrigues has given the matter considerable attention within the last two or three years.

The disease is not of very great frequency, and in a quite considerable experience, as well as observation of the cases of my friends in hospital and dispensary practice, I do not remember to have seen more than two or three well marked cases of the disease. Garrigues, however, asserts that nineteen cases of the disease occurred in the Charity hospital, New York, between October 1st, 1882, to April 1st, 1883.† As contrasted with the six months from October, 1880, to April, 1881, this number of cases is certainly astonishing, as during that time we did not have a single case of

puerperal diphtheria. If Garrigues be correct, the prognosis of the disease must have improved wonderfully since Parry's excellent description was written, for certainly the statistics of the Charity hospital from April, 1882, to April, 1883, do not indicate the occurrence of any epidemic of so fatal a disease during the year.

Parry is rather non-committal as to the nature of the disease, leaning rather toward the theory that it is primarily a local septic inflammation, but adds "that there is some reason for believing it to be parasitic in origin." Now this latter is rather more than a possibility, it is to my mind a strong probability; for there would seem to be very good grounds for the belief that diphtheria of puerperal wounds is precisely what its name implies, viz.: true diphtheritic infection, the local manifestations of which are restricted to wounds of the genital tract. There is surely very little in the clinical history and morbid appearance of the disease to refute this assumption. There is, to be sure, a far greater liability to secondary sepsis than in ordinary diphtheria, but that might naturally be expected from the local and constitutional conditions present.

Erysipelas in the puerpera seems to be characterized by its especial tendency to invade the peritoneum, and to be attended by septæmia. The "puerperal fever" resulting from infection with erysipelatous poison, is simply an erysipelas attacking the genital

*Phila. Med. Times, Jan., 1875.

†N. Y. Medical Record, Dec. 20, 1883, page 704.

lesions resulting from parturition, with frequently an internal erysipelas involving the peritoneum.

The disease, however, does not necessarily attack the parturient tract, but may make itself manifest in the face or other locality remote from the genitals. I have seen cutaneous facial erysipelas and phlegmonous erysipelas of the leg occur in the puerpera and run their course as in the non-puerperal subject, the constitutional symptoms, however, being more profoundly asthenic than in the latter.

Of two cases observed in which labor came on during an attack of erysipelas, one died and the other recovered. The first case was one which was sent up to Charity hospital from Bellevue by boat, upon a cold February day, four hours after an instrumental delivery. She was put into one of the erysipelas wards with her baby, and as I was not notified I did not see her until several hours after her admission. No binder had been applied by the surgeon who confined her, nor had she received any attention which was proper in such a case. She developed the most acute case of peritonitis I have ever seen, and died in twenty-four hours, a martyr to obstetrical carelessness.

The second case was one which I saw within a few weeks past, for my friend, Dr. Landis, of this city. In spite of unusual obstacles, this woman recovered, although upon the third day she developed tympanites; the lochia became fetid, and the tempera-

ture rose nearly to 104° F. A full dose of calomel and soda with frequent hot carbolized vaginal injections brought the temperature down to 101° by the next morning, and after that recovery was rapid.

Septicæmia has occurred in puerperal erysipelas in my experience, being apparently superinduced by the peculiar condition of the blood and secretions resulting from the erysipelas, but aside from this peculiar predisposition to toxæmia, there is nothing peculiar about the disease.

The causation of puerperal erysipelas is usually alleged to be infection with the specific poison of the disease, and most generally through the medium of unclean instruments, dressings, or the hands of nurses and physicians.

The possibility of the disease being transmitted by miasmatic contagion is also entertained by some.

Now, while admitting that contagion by either of these methods is possible, and believing that I have seen instances of it, I still think that it is rarely possible to trace the source of contagion. Cases of erysipelas are prone to spring up in hospital wards, or for that matter in private practice, under the most diverse circumstances, and in such a manner as seems almost inexplicable in the light of the modern germ theory of disease.

Very often we can trace the disease to no other cause than cold and exposure. There seems in hospitals to be an atmospheric influence constantly

present which may develop erysipelas in certain patients, while others, apparently equally exposed, escape it. There is some mysterious element in the way of constitutional tendencies, which remains to be explained. As for direct contagion, if my own observations are any criterion, it must be quite exceptional.

During my term of service at the New York Charity Hospital, I had at one time for several months, an obstetrical ward, simultaneously with a general surgical service in which numerous operative cases occurred, and two ophthalmic wards in which there were from time to time quite a number of cases of purulent ophthalmia. Nothing more than ordinary caution and cleanliness were observed, yet at no time did an outbreak of erysipelas occur in the midwifery ward, which, to make matters more favorable for contagion, was situated in the very center of the main hospital building. Cases of erysipelas were plentiful in the hospital pavilions at the time, and occasionally appeared in the general wards, although such cases rarely arose in the hospital, most of them being sent from the city. The special maternity wards, half a mile away from the main building, gave no more favorable showing than that in the hospital proper.

On the other hand, I have noticed outbreaks of erysipelas from simple exposure to cold and dampness, apparently independent of possible contagion. Thus, at the New York

State Emigration Hospital, I noted periodical outbreaks of erysipelas and acute rheumatism, which attacked both women and children in the convalescent ward, and which, upon careful investigation, proved to be coincident with careless scrubbing of the floors. Dr. E. G. Maupin, at that time physician-in-chief of the institution, informed me that he had noticed the same circumstance. Upon substituting dry cleaning the outbreaks ceased.

In view of the modern antiseptic system of midwifery in vogue, especially in hospital practice, it may seem rather a bold move on the part of one who is willing to admit the importance of sepsis as a causal element of puerperal disease, to advocate the non-interference plan of management of labor, and to suggest other and more simple means of preventing septæmia and allied diseases than those advocated by such eminent authorities as Thomas and Garrigues; but as careful observation tends to sustain me in my position, I shall not hesitate to affirm that the bichloride of mercury, antiseptic pads and injections, with bare walls, floors, and other surroundings, characteristic of small pox and typhus fever wards, are not a necessity in the lying-in chamber.

Before entering upon the details of the prophylaxis of the puerperal diseases, I wish to define my position in regard to antiseptic midwifery. I am not opposed to antisepsis in the true sense of the word, but I wish to place

myself among those who protest against the views of such obstetricians as believe in dressing the genitals after labor "with the same care as in dressing a wound after a capital operation," a procedure advocated by Garrigues.* Antiseptics are well enough in their way, but I think that it will be found that any application of them which is attended by complicated manipulations, or even frequent disturbance of the patient, is not productive of the best results in the lying-in room. I am perfectly willing to admit that non-interference can rarely be so absolute in hospitals as in private practice, at least under the present system of hospital construction and management. This is to be deplored as a necessary evil.

In a recent article, Dr. Garrigues† has described a very elaborate system of antiseptics now used at the New York Maternity hospital, which implies all the details that could possibly be devised, including prophylactic injections before, during, and after labor, with an antiseptic pad over the vulva. A series of ninety-seven cases is cited, without a death, and with but six cases of illness, comprising pelvic inflammations, metritis, and eclampsia, without a single case of septæmia.(?) Before passing upon the merits of this report, I will quote verbatim Dr. Garrigues' accurate description of the New York Maternity service, in the wards of which he has so thoroughly tested (?) his system of

rigid antiseptics: "A hospital is the true place in which to try the value of an antiseptic, and I doubt there are many places which present the conditions for a more crucial test than our New York Maternity hospital, an institution which, properly speaking, does not exist at all, except in so far that it has a medical board of its own, while in every other respect it is only a department of Charity hospital—a large general hospital in which all diseases, medical and surgical, are treated. Seventy women or more, expecting to be confined within a period varying from four months to a few days, occupy two 'waiting wards.' When labor-pains set in, they are transferred to the 'pavilions,' two small wooden buildings, each of which contains two large and two small wards, but one of the large and two of the small being used as dormitories for the pupils of the Training School for Nurses. As soon as feasible, the patients are therefore returned to the main building, and placed in the so-called 'convalescent ward,' which accommodates twenty-four patients. When at times there reigned much disease in the pavilions, the whole service was transferred to a ward in the main building, where the results became still worse,(?) until the pavilions had been disinfected, and could be occupied again."* The arrangement thus described by Garrigues, has existed since December, 1880, prior to which date the regular maternity service was located in sev-

*N. Y. Medical Record, Dec. 29th, 1883.

†Ibid.

*N. Y. Medical Record, Dec. 29th, '83, page 703.

eral cottages situated about half a mile north of the hospital. In October and November of 1880, I was in charge of the waiting wards, in which all the women awaiting confinement were kept, irrespective of their physical condition. (Cases of severe syphilis and certain incurables excepted.) In order to improve the records of the maternity service proper, all cases in which complications were apprehended, were retained in the waiting wards; thus, cases suffering with syphilis, Bright's disease, malaria, phthisis, etc., were delivered by the physicians in charge of the waiting wards, *who always had in addition a large general service.* During the months in question, I had the largest venereal service in the hospital, in which surgical operations were frequent, and two large ophthalmic wards, in which cases of purulent ophthalmia existed almost constantly. When I took the service, there was one case of puerperal septæmia in one of the waiting wards, the only one which had occurred in the service of Dr. Harrison, who preceded me, and this case died in a few days, being moribund when I first saw her. The rules of the hospital required that the women be sent by the ambulance to the maternity proper as soon as labor set in, but curiously enough, I found that *the women strenuously objected to transference to maternity, preferring to remain at the hospital rather than incur the risk of dying with "the fever" at maternity.* How frequently they would conceal their pains until

the head was on the perinæum and it was too late to send them up the island, can be answered by any of the physicians or nurses who were ever employed in the waiting wards. This fact alone should be sufficient evidence to prove that the record of the cases delivered at the main hospital, was at least as clean as that of maternity, but I can demonstrate that it was even better, especially when it is taken into consideration that the cases in the waiting wards were selected *because complications were anticipated.* I must state at this point, however, that the visiting staff seldom entered the waiting wards, hence the statements made by some of them relative to the comparative statistics of the two services might quite naturally be expected to be inaccurate. Thus the statement was made by one gentleman, some time ago, that the improved mortality rate consequent upon removal of the midwifery service and waiting wards to the pavilions was due to the fact that before such removal, the women had been kept in the waiting wards of the main hospital, prior to their transference to maternity, until seeds of disease had been sown in their systems, which developed puerperal fever as soon as labor had occurred. This looked very pretty upon paper, but as I have elsewhere shown,* the fact of the matter was that the mortality rate of the cases actually confined in the main hospital, had always been

*Vide Letter to the New York Medical Record Dec. 23, 1882.

better than those of maternity. This fact alone is sufficient to settle such an argument, and as I will endeavor to show, there were other and very much more logical reasons for the change for the better.

The maternity service was conducted by a staff of resident and assistant physicians who served for six months continuously to obviate frequent changes and the consequent great danger (?) of importation of "germs." Prior to assuming charge of the service, each physician was required to "disinfect" by means of a carbolyzed bath and several days' absence from the hospital, and during the term of service was compelled to keep out of the hospital wards, and as nearly out of sight of the dead-house and surgical wards as possible. The nurses were required to go through the same routine. The patients were syringed and antisepticated from morning till night, from the time labor set in until they were transferred to the convalescent ward. Should the merest suspicion exist of a piece of placenta or shred of membrane having been left in the womb at the termination of labor, a tour of exploration and vigorous scraping was immediately instituted. The placenta was usually expressed by Crede's method, and altogether dame Nature had about as much chance as a feather in a cyclone. At the main hospital the physician could not by any possibility prepare for his duties in the elaborate manner above described, for he invariably had in addition a large general ser-

vice; and even should such a course have been practicable, its benefits (4) would have been neutralized by his constant exposure to contamination in the general wards. The nurses were quite frequently changed and lived in the main hospital. The cases were selected because of their supposed liability to puerperal complications (excepting those who voluntarily remained with us), and when confined were let alone as far as possible under the rules of the hospital; (and for my own part I wished they might have been disturbed even less.) According to the views of Garrigues, as implied in his article on antiseptics, already mentioned, we lesser lights in charge of the waiting wards, ought to have lost all of our cases; but unfortunately for theory, we not only did not lose them all, but our records were better than those of maternity, and we were always ready to deliver all the women whenever, as was frequently the case, our septophobic friends had their hands so full of septemia that to be delivered at maternity meant death in the eyes of the anxious women in the waiting wards. Two such instances occurred during October and November, 1880, the service on the last occasion remaining at the hospital permanently.

Statistics are often of advantage, and it behooves one of positive opinions to have a few figures on hand. I have a few which I may ask to be allowed to present. They do not correspond exactly with those given by Dr. Garrigues, but I am prepared

to substantiate their correctness.

From August, 1880, to December, 1880, there were confined in maternity proper, fifty selected cases. Of these five, or ten per cent., died of puerperal metritis, septemia or peritonitis. In the waiting wards during the same months, there were confined seventy-two cases, also selected; but for their peculiar liability to complications, the exceptions being those who dreaded the perils of maternity, and concealed their pains until too late for transference. Of these six died, only three of which, or about 4 per cent., died of septic infection, the remainder dying respectively of nephritis, cardiac disease, and meningitis (the latter cases showing conclusively the unfavorable character of our cases as a class).

During October and November I delivered in the waiting wards alone twenty-five women, of whom but one died, and she of extensive heart lesions and pulmonary œdema. Another death occurred, but that was the case of septemia before mentioned as having been left over from the preceding service. During these same months, thirty out of the fifty cases cited from the maternity records, were delivered at maternity proper, and of these the five fatal cases mentioned formed a part, making a mortality for the two months of $16\frac{2}{3}$ per cent. from septicemia at the maternity, and only four per cent., and that from cardiac disease, in the main hospital. The statistics published by Garrigues include all cases confined at Charity

hospital during the years from 1875 to 1882, and include cases confined in the general and venereal wards, which should not be included at all, as such cases could hardly be a fair criterion of our obstetrical success, being the most unfavorable that could be imagined. I will not undertake to give these statistics, but will merely allude to some of them as important in bearing out my statements: In 1875, the first year of the occupancy of the Maternity Hospital, the service having been transferred from Bellevue at that time, there were 570 deliveries, with a mortality of 15, or 2.67 per cent. This was the lowest mortality rate noted until 1881, when it fell to 2.36 per cent., having risen as high as 6.67 per cent. in 1877. Now, the low rate of 1875 was co-incident with the occupancy of new wards, and that of 1881 with the removal of the service to the pavilions, which were also new, as far as puerperal cases were concerned.

This transference took place in December of 1880, the maternity having been in such bad condition that all the cases had been turned over to the waiting wards in November. The waiting wards having become overcrowded, I was compelled to deliver the cases in the pavilions, in which the whole service was finally retained, the old maternity being turned over to the almshouse for a hospital for incurables.

During the service of Dr. B. Wood, who succeeded me on the obstetrical service, sixty-eight cases were

delivered with but three deaths. One of these was a case of septemia occurring in a case delivered by forceps, in which extensive perineal laceration occurred, and which was complicated by Bright's disease and tertiary syphilis; the others were due respectively to renal disease and cardiac syncope during instrumental delivery.

In the next two months Dr. Urquhart followed with sixty-two cases with three deaths, but one of which was due to septemia; the others being cases of fatal pulmonary oedema from chronic nephritis. The grand total for the waiting wards and pavilions from August, 1880, to April, 1881, was 202 cases, with a mortality of twelve only; five of which, or a little more than $2\frac{1}{2}$ per cent., were due to septemia, or puerperal fever, and all this notwithstanding the fact that the two gentlemen named, and their nurses, were in constant communication with the hospital, and in spite of the presence of 150 cases of true typhus within one hundred yards of the pavilions. What was still more peculiar, neither Dr. Wood nor Dr. Urquhart allowed vaginal injections, both gentlemen advocating a let-alone plan of treatment, more rigid, if possible, than my own. I do not think it necessary at this point to draw any deductions from the facts I have presented, as they speak for themselves. Should my statements be disputed by those gentlemen who have based such pretty theories upon the results of their observations at the New York Maternity Hospital, I should take

great pleasure in referring them to the hospital records, to our excellent ex-chief of staff, Dr. Estabrook, whose soundness of judgment can not be questioned, and to the gentlemen of the house staff whom I have mentioned.* Following up the records of the hospital, I might also mention the fact that from April, 1881, to April, 1882, 423 cases were delivered, with but two deaths from puerperal fever. The treatment of this series of cases was non-interference, no disgusting carbolic acid, and plenty of clean water and soap. Knowing the calibre of certain gentlemen of the staff at that time, I might safely add, "plenty of good common sense." I should like to ask if Garrigues, with his antiseptic minutiae and wonderful pad, can show any better results. He gives ninety-seven cases with six sick women and no deaths; but as far as I can see, four of his cases were septic in origin. Now, as this is certainly an improvement over some of the results obtained just before the introduction of the antiseptic system, to what is this improvement due? *Simply to the painful cleanliness enforced, and the substitution of the plaything termed the antiseptic pad, for the deadly syringe—a harmless toy for a murderous engine.* As for the details given by Garrigues, and in a certain measure those given by Thomas,† they are in many respects

*I should state in this connection that my failure to mention the visiting staff in my remarks, is due to the fact that at the time my observations were made, they were treating the house staff just as the latter were their obstetrical cases—i. e., on the let-alone system.

†New York Medical Record, Dec. 15, 1883.

unnecessary, and to a certain extent dangerous, as tending to foster the practice of meddling midwifery on the part of those professional men of little experience, who are inclined to obey the dicta of such eminent leaders to the very letter.

As I have already intimated, I believe that the better mortality rate of the waiting wards and pavilions, as compared with the regular maternity service, was due to our non-interference, and especially to the cessation of frequent vaginal injections. In many cases in which I have seen the latter given, I believe that I have been able to trace rises of temperature and pelvic inflammations to them, and I think that the statistics which I have given, show plainly, that cases treated on the non-interference plan, even in hospitals, do better than those who are flooded with antiseptics, and treated with as much solicitude as if they had been subjected to a surgical operation. Introspection may be a good thing under certain circumstances, but in the case of the puerperal woman, whose nervous system is in a state of unstable equilibrium, and who is predisposed to febrile disturbances, it can only be detrimental. Women, who when frequently disturbed, will get up a rise of temperature, which may eventuate in puerperal septicæmia or pelvic inflammation, and lead to a fatal issue, would often do well, and make a perfect recovery, if let alone, and kept quiet and free from curious visitors. As for prophylactic intra-uterine injections, the man who

uses them will sooner or later come to grief. Even Thomas, with all his details, and while advocating vaginal injections, decidedly objects to intra-uterine injections.* Barker, stopped using injections of any kind two years ago, and has had better results since.† Baruch,‡ after a considerable experience, condemns prophylactic injections as ‘harmful, and tending to interfere with natural recuperative processes, and on account of the moral effect upon the parturient woman in particular, and expectant mother in general.’ In the discussion of Garrigues’ paper upon the antiseptic pad, etc., by the N. Y. County Med. Soc., Gillette stated that when the maternity service was first transferred to Blackwell’s Island, there were only two deaths from septicæmia in over six hundred deliveries, (this differs from Garrigues’ statistics), the treatment being simple cleanliness. Dr. Baruch stated that in nine hundred confinements in twenty years’ practice, he had but one death. He began using injections, and in two years saw six cases of septic processes. Dr. Garrish, a man of exceptionally sound judgment, stated that out of four thousand labors, he had seen but two cases of puerperal peritonitis. His treatment was simple non-interference. Many other names might be mentioned who are in accord with these gentlemen in their condemnation of meddling midwifery. Even our German confreres, radical as are their

*Med. Rec., Dec. 15th, 1883.

†Med. Rec., Feb. 16th, 1884.

‡N. Y. Med. Journal, Jan. 5th, 1884.

views of antiseptics, are fast abandoning prophylactic injections in normal labor, using them only when there are special indications for so doing, and when such men as Carl Braun and Hegar condemn them, it is surely well enough to be cautious in their use.

In connection with the subject of meddlesome midwifery, it might be well to allude to the method of placental expression advocated by Garrigues. This gentleman recommends that the placenta be "pressed out" by Crede's method in ten or fifteen minutes after the birth of the child. Now, this practice appears to me as absurd as it is pernicious, and only becomes absolutely necessary in case the placenta be retained for at least an hour. Prior to that time anything more than gentle pressure to excite uterine contractions is unjustifiable, and it is even better to avoid all interference until at least half an hour, the womb meanwhile being gently, but firmly grasped to prevent relaxation. By unnecessary "expression" of the placenta, we are likely to bruise the uterine and surrounding cellular tissues, and excite inflammation. There is no more likelihood of serious harm resulting from a few minutes' retention of the placenta at the present time, than there was centuries before Crede was ever heard of, and I may be permitted to say also, that my views in regard to such interference as well as prophylactic injections, are not due to preconceived notions, for I was taught

that they were good things, and practiced them sufficiently long to see their evil results.

In regard to the custom of removing all portions of secundines which may be left in the uterine cavity, it can only be said that if done carefully and judiciously, and the portions left are not of microscopic size, such removal is excellent practice; but when I hear of an inexperienced obstetrician plunging his hand boldly into the uterine cavity, and desperately seeking for an imaginary piece of placenta or membrane, I have learned to be somewhat solicitous for the safety of the patient, and I am confident that if let alone nature would often safely accomplish what the physician perhaps vainly attempts to do. I do not wish to underrate the importance of freeing the womb from putrescible substances, but I do entertain the humble opinion that the danger of such bits of secundines has been greatly magnified. Ordinarily they will separate and come away in the discharges without any injurious results. I remember one instance bearing upon this point which is of some interest. A woman was confined upon ship board, and the placenta failed to come away. She entered the Emigration Hospital two weeks after delivery; the stinking placenta was then removed, the uterus washed out with hot carbolized water, and no subsequent trouble was experienced.

Although my paper bids fair to be a very long one, I will venture to cite another illustration of the advantages

of non-interference in obstetrical practice. In my capacity of Resident Surgeon to the New York State hospital for emigrants, I had an opportunity to observe the obstetrical records of that institution, and found that although the number of cases was large, puerperal fever was almost unknown. *All of our cases were delivered by a midwife, the doctor never entering the wards (which were in the main hospital) excepting in cases of complication or in making his daily rounds.* Should a woman develop a little fever, with abdominal tenderness, a single full dose of calomel would usually afford immediate relief, and the case go on to perfect recovery. It may be argued that the women were in better condition than in ordinary hospitals, and with reason; but the newly landed immigrants had something to contend with of as great importance as physical ailments, *viz.*, home-sickness. This statement may seem peculiar, but it is true, and I have had strong, robust men and women enter my wards, complaining of illness which was nothing more or less than home-sickness and disappointment in not finding America a land of milk and honey. I think that all will agree with me when I state that there is hardly anything which tends to render a labor more unfavorable than does mental despondency. The records of Emigration hospital since I left the service appear to still further bear me out in the views I have set forth. A year or so since a so-called "reform"

was instituted in the emigration service, and a part of that reformation consisted in abolishing the office of the midwife and turning the service over to the doctors. The usual prophylactic injections and complicated manipulations were introduced, and with the direct and immediate effect of increasing the mortality rate, which became alarmingly high. There were present upon Ward's Island at the time a large number of Russian Jewish refugees, who were huddled together in quarters by themselves. There were many cases of labor among them, but not being of the favored few, they were not considered worthy of transference to the maternity wards. Dr. L. W. Schultz, at present Medical Examiner of emigrants at Castle Garden, informs me that he delivered upwards of ninety of these cases, without a death, notwithstanding their filthy condition, mental despondency, and numerous forceps deliveries, and this under a system of absolute non-interference. Here was as fine an opportunity for comparing the two systems as one could wish. As one sensible member of the Commission remarked, "better results were obtained by the midwife than by the doctors, with all their fancy, high-toned midwifery."

A very important point in its relations to puerperal affections, is the question of primary operation for perineal lacerations. The preponderance of evidence seems to be in favor of an immediate operation, but as far as my experience goes, I am inclined to be-

lieve that the tendency is toward too much routine practice in this respect, in hospitals especially. In severe lacerations the primary operation is very essential, and often productive of the best results, but in those of less degree, the irritation produced by the sutures, and the shock caused by the operation, are quite likely to counterbalance any possible benefits which might be derived from it, the more especially as such lacerations heal spontaneously without difficulty. I have repeatedly noted elevations of temperature in such cases, which subsided immediately upon removal of the sutures. Silk is more likely to give trouble in this respect than either silver or catgut. Chromated catgut is probably the best material for sutures. In deep and extensive lacerations it is of course desirable to repair the injury at once, and thus diminish the surface for septic absorption. In case of lacerations which extend completely into the rectum, it is seldom that an operation succeeds. In hospital practice I have noticed that union is very rare, and I believe that such has been the experience of others in this respect, the tendency in some quarters at the present time being rather toward the secondary, in preference to the primary operation. When left in this way, the laceration should be managed upon the same principles as the minor lacerations, cleanliness and the free use of iodoform being the most important elements of treatment. Now it would appear that the irritation of sutures

ought to be of no greater importance in perineal operations immediately after labor, than at any other time, but it is of vastly greater importance on account of the peculiar physiological state of the woman, which is one that invites sepsis. The slight fever resulting from the sutures is likely to pervert the secretions and convert them into a favorable nidus for the development of bacteria. I do not wish to be understood as condemning the primary operation for perineal laceration, but as suggesting that it be reserved for such cases as are likely to receive sufficient benefit to compensate for the shock of the operation and the irritation of the sutures. In general the operation is very successful, if properly performed. The use of silk sutures explains many failures to obtain union. A short time since a prominent physician informed me that he had operated on a large number of cases, but had never obtained success. On inquiry he stated that he had always used silk sutures. With silver wire success is the rule. The after treatment of perineal lacerations, whether repaired or not, is of importance. I believe that injury is often inflicted through the pain and nervous irritation consequent upon the passage of a catheter at frequent intervals. It is well nigh impossible to pass an instrument into the bladder without disturbing the perineal wound, especially if the knees of the woman are bound together, as they should properly be, and such instrumentation is

unnecessary. A bed pan should be used, and a stream of iodised water from a fountain douche allowed to flow over the vulva during urination. This plan has been tried after the secondary operation, with perfect success.

Speaking of the after treatment of perineal lacerations, brings us to the consideration of antiseptics after labor, for it is in cases of laceration of the various tissues of the parturient canal that they come chiefly into play. The same rules govern their use, irrespective of the situation of the laceration. In all cases of trauma which are sufficiently marked to merit any attention, vaginal injections are indicated. These should be composed of a drachm or two of the officinal tr. of iodine to the pint of warm water, and should be given three times daily. At night a vaginal suppository of iodoform and oil of eucalyptus should be introduced, providing it can be done without disturbing the wound if it be in the perineum. In cases of perfectly normal labor, a single iodized injection should be given after the placenta has been delivered and the woman washed. After this injections should be used for cleanliness only, one being given each night, unless the lochia should become fetid or some complication arise. *Any injections aside from this constitute unwarrantable interference. As for prophylactic intra-uterine injections, they will hardly be used by any practitioner who has the best interest of his patients at heart.* I much

prefer iodine to carbolic acid, as it is a more efficient deodorizer and more powerful antiseptic, being destructive to bacteria in a strength of 1 to 5,000. The bichloride of mercury I have had no experience with in obstetrical practice, but can see no reason for preferring it to iodine. In view of its chemical action in forming albumenates I should be inclined to question its usefulness, unless in very dilute solutions.

Injections during labor are recommended by some of our antiseptic extremists, but they are not only useless, they are injurious, inasmuch as they disturb the tranquility of the woman and check the natural secretions of the genital tract, thus obstructing labor. As Garrigues himself says of the bichloride of mercury, "mucous membranes lose somewhat of their slipperiness under its use." All unnecessary manipulations during labor should be avoided, and examinations should be as infrequent as consistent with careful watching of the case, for every unnecessary introduction of the hand within the rima vulvæ is prejudicial to the safety of the patient. Tardy delivery should be avoided by dilatation or in appropriate cases, the forceps. In dilatation of the cervix, I think it will rarely be found necessary to use instruments of any kind. Barnes' bags are well enough, but not so simple in their application as some would have us believe. The fingers will be found to be the safest and most serviceable instrument. In the application of the

forceps, we should be guided by the condition of the patient rather than by the mere duration of the second stage, or the dictum of some obstetrical authority. I have heard practitioners say that they used the forceps quite frequently, "just to save time." Perhaps if the truth were known, their patients would hardly appreciate the full value of the doctor's time, when weighed in the balance with their own safety.

Believing as I do that many cases of puerperal inflammations are due to a chilling of the surface during or after labor, I would suggest that a little more care to prevent this be exercised, particularly during the washing and changing linen of the patient. A medical gentleman remarked to me quite recently, that he lost his own wife through the carelessness of a nurse in placing a cold bed pan beneath her. A chill at once occurred, cellulitis developed, and the lady died on the twentieth day after confinement.

In regard to the administration of ergot in obstetric practice, I can hardly say much of interest, but as the drug both produces uterine contraction and hastens involution, it is an undoubted prophylactic of puerperal diseases. It is my own custom to give 3i upon delivery of the child and to repeat the dose after the placenta has been delivered. In feeble subjects and after severe or instrumental labors, I give small doses of ergot and quinine for a week or ten days. I am aware that there are

those who dispute the propriety of giving ergot prior to the delivery of the placenta, and I have myself quite recently had a case of hour-glass contraction of the uterus, which somewhat unsettled me upon the matter.

As such cases are rare, however, and it remains to be proven that they are due to the ergot, I think that the plan mentioned is, on the average, the best one to follow. After labor is completed a pad of oakum should be placed over the vulva, not to exclude "germs," but to preserve cleanliness. It is antiseptic in the sense that it does not favor putrefaction, as well as much neater and more convenient than napkins. In general, I will say that the woman should now be interfered with as little as possible, and visitors rigidly excluded; and I feel confident that under such management septæmia will be found to be a very rare disease. Barker, while believing in a specific "puerperal fever," claims that puerperal septæmia is rarely seen outside of the hospitals, giving but a small percentage of the mortality in private practice,* but it is my belief that under the complicated systems of management of the puerperal woman advised by our eminent eastern brethren, the disease will become a very formidable enemy to womankind. I say these things, not because I fail to appreciate the potency of "germs" and the value of antiseptics, but because I think we are many of us inclined to interfere too much with our obstetrical cases,

*The Puerperal Diseases, by Fordyce Barker.

and to regard labor in the light of a pathological, rather than a physiological process. The balance is largely in favor of a safe delivery and speedy convalescence, and not, as some seem to think, against recovery, thus necessitating the most energetic measures to preserve the life of the woman. Women are to-day entitled to the same natural advantages that they were long before syringes, antiseptics and microbes were ever dreamed of, and in order that they should receive the benefits of the various wise provisions of nature, a little less interference is in order.

But the syringe and antiseptic drugs have a useful sphere in our midwifery practice, and when actual danger of complications exists, or the latter have really set in. The former contingency is covered by the remarks upon laceration of the perineum. Prophylactic vaginal injections are necessary when trauma of the parturient canal exists, and both vaginal and intra-uterine injections are indicated under certain circumstances, when septæmia or inflammation threaten or have begun. As soon as the lochia become scanty or fetid, hot iodized vaginal injections should be given every few hours. In a very short time the lochia often lose the bad odor, or, if suppressed, return. The latter will be aided by hot flaxseed poultices over the abdomen. Very often a case will develop some fever, with abdominal pain, tenderness on pressure and typanites, which seem to be due entirely to in-

testinal disturbance, and will entirely disappear under a single full dose of calomel and a hypodermic of morphia. Such cases, if not relieved, are likely to eventuate in septæmia or pelvic inflammation. When evidences of septæmia are manifest, or when high temperature and fetor or suppression of the lochia indicate danger, intra-uterine injections are demanded, and it is often by their judicious use alone, that life can be saved. I would recommend the iodized hot water in a strength of from 3i to 3iii to the pint. The strength can even be increased if necessary, and in a recent case of septæmia, following removal of retained secundines, six weeks after a criminal abortion at the third month, I think that I saved the patient by an injection of nearly pure tr. iodine co. into the uterine cavity. The injections are to be repeated as often as the temperature rises, and are to be given only by the physician or a skilled nurse. I have used Chamberlain's glass tube, but I find that a simple glass tube with a pelvic curve, is all that is necessary. In severe cases, the tube after being once introduced, may be left in situ until danger is past, if the physician cannot give the case proper attention; then with a fountain syringe anybody can give an injection. Even constant irritation may be advisable under such circumstances. Thomas condemns it,* but it is often very useful. Jones, of St. Paul, has recently re-

*Medical Record, N. Y., Dec. 15, 1883.

ported several interesting cases in which the method was successful.† Suppositories of iodoform and eucalyptus may be used several times daily, as recommended by Sloan.‡ Alloway recommends pencils of iodoform to be introduced directly into the uterine cavity.§ Burkhardt, of Bremen, recommends the curette, followed by the uterine pencils of iodoform, and reports a case in which the curetting was practiced daily for several days with success.|| The iodoform pencils are probably useful, but the curetting would hardly be proper, excepting portions of secundines were known to be left; for under other circumstances it would simply open up the uterine sinuses and thus afford new surfaces for absorption of septic material. The formulæ for the suppositories recommended by Sloan are as follows:

R.	Olei Eucalypti.	3iv.
	Cetacei Alb.,	3ii, vii.
	Butyri Cacaonis,	3iv.
	Ft. Suppos.,	No. xii.

M.

R.	Olei Eucalypti.	3ii.
	Iodoformi,	3i.
	Cetacei Alb.	q. s.
	Butyri Cacaonis,	q. s.
	Ft. Suppos.,	No. xii.

M.

That iodoform is an excellent antiseptic, is beyond dispute. It is also rapidly absorbed by the mucous membranes of the genital canal, and it is

said that some patients can taste it in a very short time after its administration per vaginam. Iodine in any form is the internal antiseptic par excellence. It is safer than either carbolic acid or the bichloride of mercury, the latter on account of its chemical affinity for albumen, not being at all reliable as an internal antiseptic. Iodine may be given by the stomach as well as by injection, and the iodide of potassium is an available form for administration.

The success of the iodine treatment in typhoid fever ought to be a good basis for its use in septæmia. As antipyretics are indicated, the intra-uterine injections may be reinforced by quinine and cold baths.

A drug which has in my hands seemed almost specific in septæmia, is the salicylate of iron, which will often rapidly lower the temperature in cases which quinine fails to affect, and will sometimes be retained by the stomach when all other medicines are ejected. These various measures, with the judicious use of morphia and stimulants and good nourishment, constitute the proper management of puerperal septæmia.

When inflammation exists, opium is necessarily the main reliance. If the inflammation be simple, hot vaginal injections constitute the principal local treatment; but to be effectual, they should be given through a cylindrical speculum. Occasional hot rectal injections are also beneficial. In case of pelvic exudation, small doses of opium with the iodide of potassium

†Talbot Jones, N. Y. Medical Record, Jan. 12, '84.

‡S. Sloan. Braithwaite's Retrospect, Jan., 1883.

§Canada Medical and Surgical Journal, April, '83.

||Zeitschrift für Geb. and Gyn., Bd. ix, hft. 2.

will be found useful. The calx sulphurata in doses of 1-12 gr. every hour will tend to prevent suppuration in certain cases.

The faradaic current is one of the best remedies at our command to induce resolution of pelvic exudations, and should be more frequently used for this purpose. Within a few months I have had a case of pelvic cellulitis with enormous exudate, in which resolution was very slow until I began the use of electricity, when it resolved in a very short time. In case the inflammatory process is somewhat indolent, the negative sponge electrode should be applied over the affected region; but if the inflammation is acute and suppuration threatened, the poles should be reversed. Suppositories containing iodoform and the iodide of potassium appear to aid resolution. By this method of administration, deobstruent remedies are brought into most intimate relations with the affected tissues, and are quite readily absorbed, the vaginal mucous membrane being much more active in this respect than is generally supposed. The old fashioned fly blister, followed by mercurial ointment, a treatment not much in vogue at the present day, is a much more efficient remedy in pelvic inflammations than are many more modern methods of treatment.

In case of a pelvic inflammation dependent upon or modified by septic infection, the constitutional is quite as important as the local condition, and in fact, the chief danger lies in

the toxæmia; hence the general and local measures should be, as in simple septæmia, such as tend to prevent the formation of septic material in the uterus, to prevent its absorption by removing it as fast as it is formed, and to neutralize any of the poison which may have already been absorbed. A small amount of septic material may enter the circulation and be eliminated, but its continuous formation and absorption will prove fatal.

General peritonitis complicated by septæmia is the most fatal disease to which the puerpera is liable, and is the "puerperal fever" alluded to by most obstetrical writers. In this disease, we have one of the worst of constitutional maladies linked with the most fatal of the puerperal inflammations, and the prognosis is therefore usually fatal.

The treatment comprises those measures suggested in puerperal septæmia, in combination with the very free use of opium and stimulation. Such antiphlogistic measures as the application of cold and the administration of such sedatives as aconite and veratrum viride, are quite likely to be injurious, as the vital powers are already almost overwhelmed by a most powerful poison. Hot applications over the abdomen are, however, of great service.

In simple puerperal peritonitis, on the contrary, or when inflammation rather than sepsis is the predominating condition, such remedies come into play. The cold rubber coil, so highly endorsed by Chamberlain, is a

very useful measure in such cases, providing it can be borne.

Many of the measures which I have suggested will rarely be necessary in private practice, especially if the let-alone system of midwifery be followed as it should be; but in the hospitals, even under the most judicious management, cases for their application will frequently arise. The reasons for this are obvious. We have in the first place, "crowd poison," and secondly, the poison of specific disease, which increases in intensity as time goes on and fresh cases develop, and so saturates hospital walls and equipments that puerperal diseases are constantly liable to occur; quite as liable, indeed, as are such diseases as erysipelas and septæmia in surgical cases under such circumstances. As another factor we have frequent manipulations at the hands of physicians and nurses who are constantly exposed to hospital miasm—and there is a "miasm" peculiar to hospitals, as anyone who like myself has suffered from hospital fever can testify. Then, too, the women are often mentally depressed by the peculiar social circumstances surrounding their pregnancies, as well as in many cases broken down and cachectic from disease. But by far the most important point is the fact that the secretions and very tissues of hospital attendants are poisoned from constant exposure to hospital air and cases of disease. As a natural consequence the danger of disease in the puerperal confined in a hospital ward is in direct

proportion to the frequency with which they are approached by their attendants. This explains the mortality following complicated systems of midwifery, and by this I mean especially the custom of frequent prophylactic injections. By the non-interference plan, the proportion of cases confined in our hospital wards who die of puerperal diseases will be greatly lessened, and this I have seen practically demonstrated. There is another method of reducing the mortality attendant upon hospital midwifery which would prove far more effective than any of the plans thus far suggested by our eastern brethren, who in their battle with germs have overlooked some very valuable suggestions furnished by their own statistics. It will be noticed that the removal of the maternity service from Bellevue hospital to new wards upon Blackwell's Island was followed by a very low mortality rate. When these wards became saturated with puerperal poison, crowd poison, or whatever we may choose to term it, the mortality began to increase and continued high until the service was again transferred to pavilions never before used for obstetrical purposes, when it again dropped to a minimum. How simple the deduction to be drawn from this, and how short-sighted the policy which overlooked it! Why did not our bacteriophobic friends take the hint and keep on transferring their cases to new pavilions, instead of looking to antiseptics to cure conditions the cause of which was always with them?

I venture to say that if the commissioners of charities and corrections of the city of New York should invest a little of the public money in a number of cheap and inexpensive structures for obstetrical purposes which could be torn down and rebuilt from time to time, at regular intervals, puerperal fever would soon disappear from maternity. It is simply a question of a little expenditure of cash *vs.* a fearful mortality rate, and judging from their statistics, it would be quite as cheap to save the lives of the women as to bury them. It is my own opinion that an obstetrical ward should never contain more than half a dozen beds, (a less number being desirable,) and should never be in continuous use for more than two or three months at a time. Other pavilions or wards should then be occupied, the first one being disinfected by large quantities of chlorine gas, and then thrown open to the sun and air for a few months. That disuse of hospital wards is beneficial is illustrated by the history of those same pavilions now used as the New York maternity hospital, which the year previous to their being used for obstetrical purposes, were used for erysipelas, many virulent cases of which were confined therein. No extraordinary efforts at disinfection were made, but the pavilions were allowed to stand idle for some months, and were thoroughly scrubbed before being turned over to the maternity service. As I have shown, the records of the first year following their use were the best that had ever been

known at maternity.

My paper has already far exceeded the limits I anticipated, hence I will bring it to a close by formulating in as few words as possible the conclusions to which my observations have led me.

1st. Septemias and allied puerperal diseases are rare in private practice, especially as compared with hospitals, because of the better physical and mental state of the women, and the general non-interference practiced by the majority of general practitioners.

2d. It is relatively frequent in hospital practice, because of the cachexia and mental depression so prevalent among the women, frequent manipulations at the hands of attendants, who are super-saturated with hospital miasm (and under this head I include a well-meant but fatally energetic system of prophylaxis), and last, but not least, the continuous occupancy of buildings which have become thoroughly impregnated with crowd poison, puerperal poison, or whatever it may be termed.

3d. The rational prophylaxis of the puerperal diseases in private practice is to avoid following the complicated systems of midwifery, advocated by those whose dicta are potent only by virtue of the great name with which they are labelled, and to practice the same common-sense methods and secure the same cleanliness which have so well served many of our medical brethren, whose experience dates back to a period before many of our modern obstetric specialists were

born—in short, to regard labor as a perfectly physiological phenomenon.

4th. The prophylaxis in hospitals should be to avoid over-crowding, use temporary buildings for obstetrical purposes, keep the women and everything about them clean, practice non-interference, and depend upon nature and plenty of clean water and soap, using antiseptics as a luxury rather than a necessity.

5th. It should be remembered that, as Barker has said, no one has yet maintained that the puerperal woman is exempt from those causes which produce simple inflammations and other diseases in the non-puerperal. In short, it must be borne in mind that we are likely to have local inflammations as well as septicemia to combat, and that either condition may

occur alone, or as a complication of the other.

6th. When a septic element is demonstrated in a puerperal disorder, the basis of treatment should be to prevent the further development of septic material or to remove it as fast as formed, and to give support to the system in its efforts to rid itself of the poison already absorbed. At the same time remedies should be given which tend to neutralize septic poison in the system, and to assist the various excretories in its elimination. If septemia does not exist, and nothing more than a local inflammation is present, let it be treated as such, and not by vigorous antiseptic measures, which simply serve to aggravate the condition present.

125 State Street, March 15, 1884.

